

CERN 88 MHz

Note:

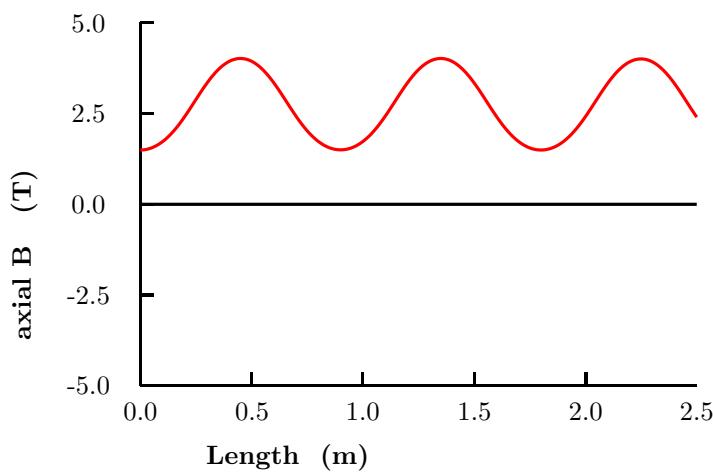
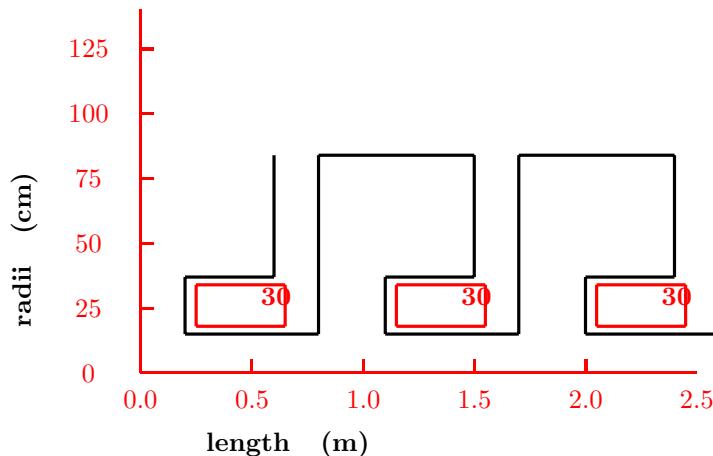
dimensions from CERN drawing
currents by me for 200 MeV/c.

len1	dl	rad	dr	I/A
m	m	m	m	A/mm ²
0.250	0.400	0.180	0.160	3 30.47
0.750	0.400	0.180	0.160	3 30.47

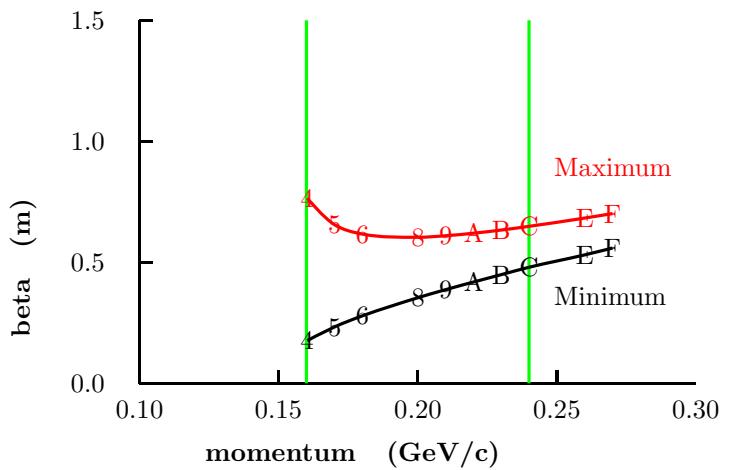
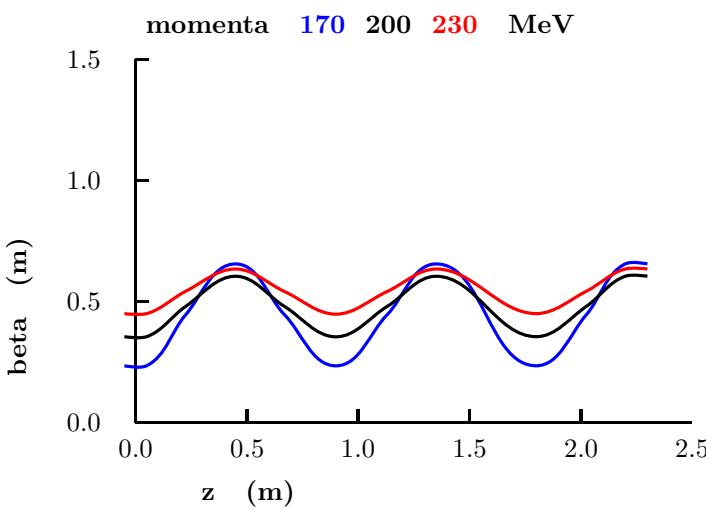
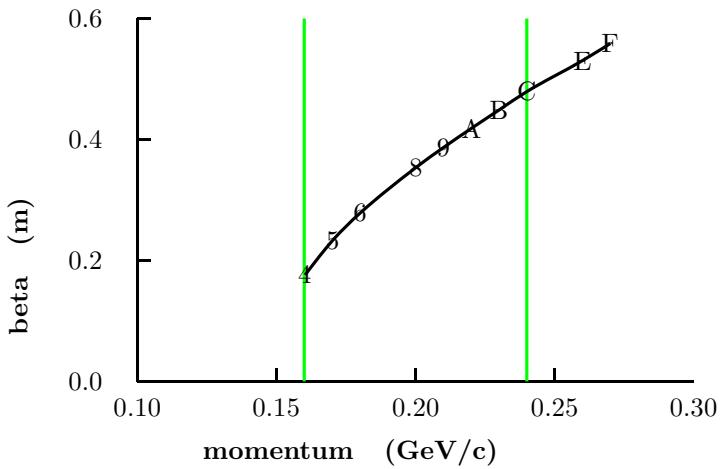
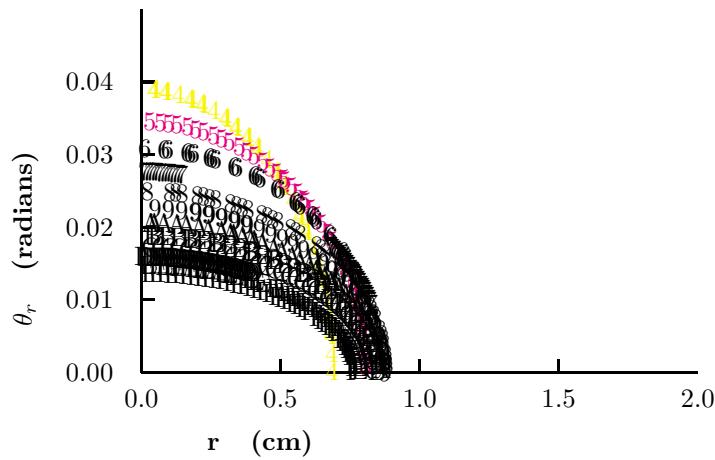
amp turns 3.9 (MA)

amp turns length 6.37 (MA m)

cell length 1.8 (m)

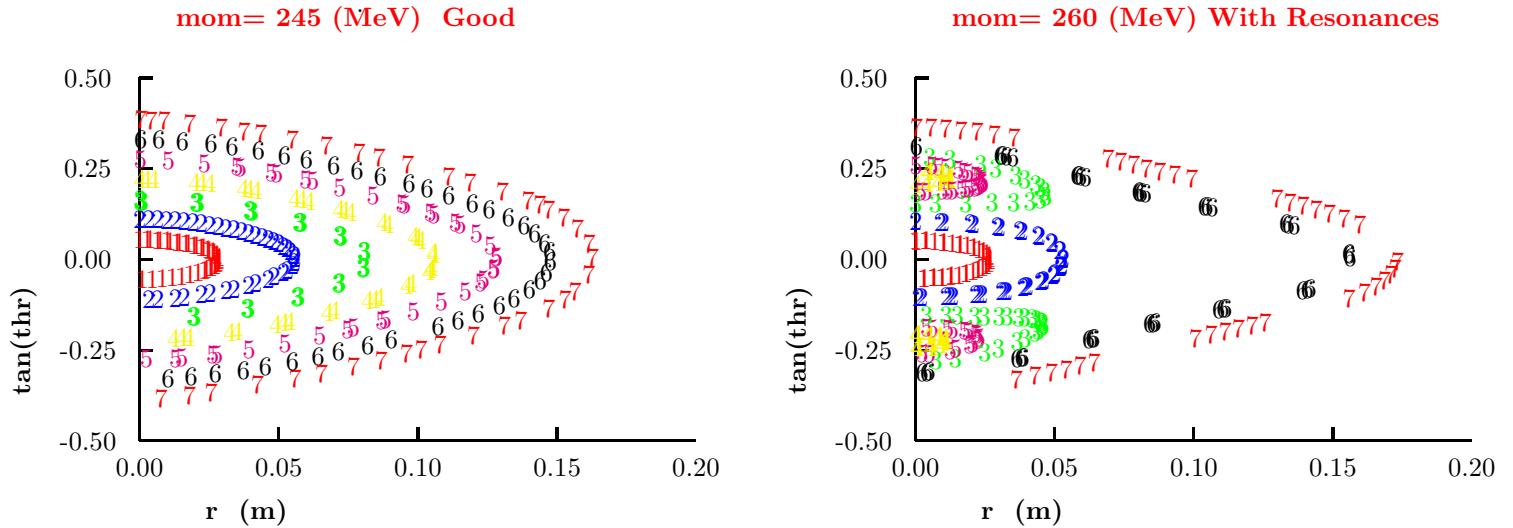


Paraxial Parameters



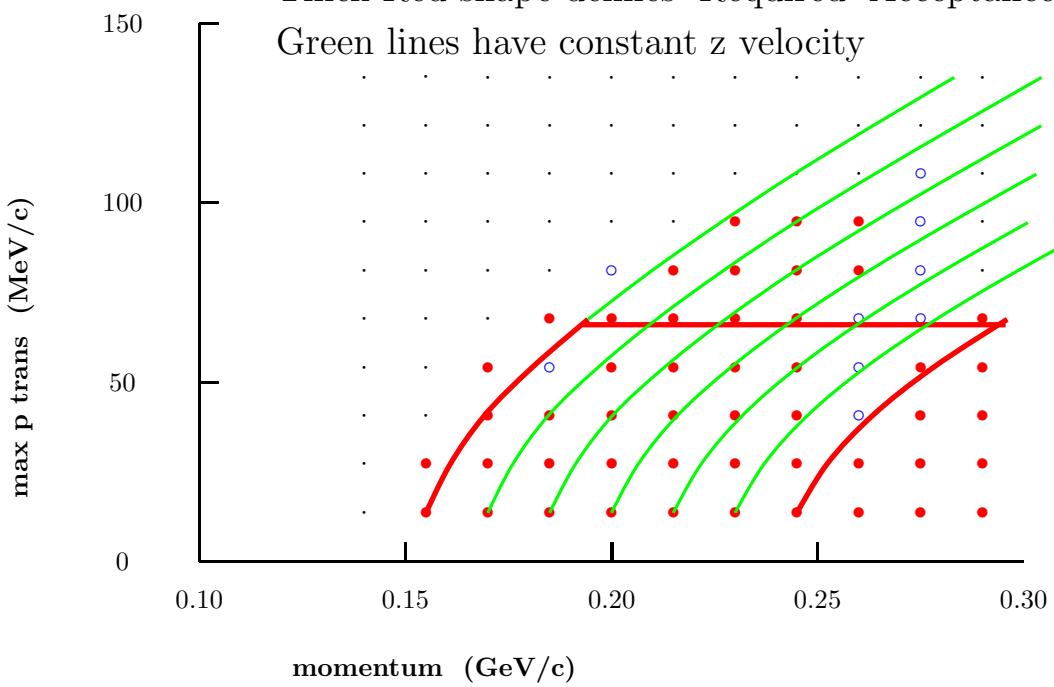
Acceptance

Examples of Phase Plots:



Acceptance

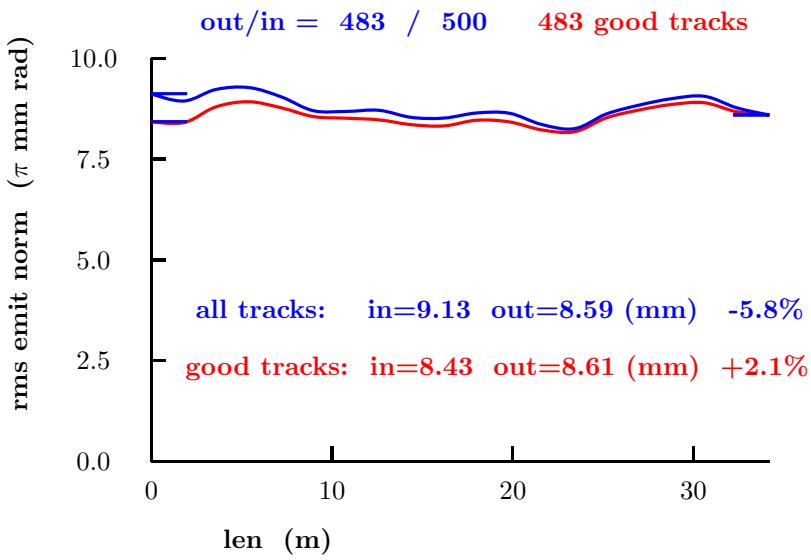
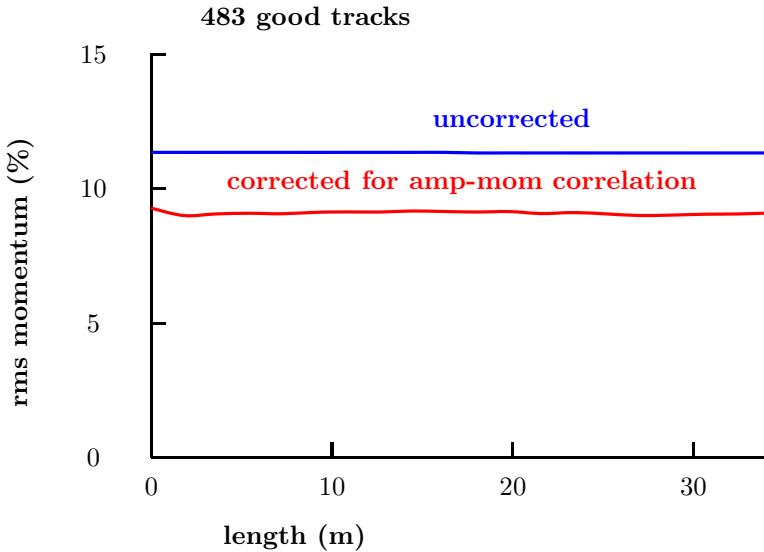
Lost=· Good=● Resonance=o
 Thick Red shape defines 'Required' Acceptance
 Green lines have constant z velocity



Tracking Gaussian Beam

No material or RF

500 particles, $\sigma_p/p=9\%$, $\epsilon_{\perp}=9$ (π mm)
3.4% loss



Conclusions

- Mean Beta function depends only on cell length & $d\beta/dp$ acceptance
- For 1.8 m & $\pm 20\%$ Mean $\beta = 35$ cm
- B_{max} depends on mean p
- $B_{max}=4T$ for 200 MeV/c
- For $\epsilon = 4 \times$ equilibrium, 'Required' θ acceptance=0.35 rad
- Mean Momentum acceptance is function of amplitude
- All 'Required' acceptance is transmitted
- But some regions are in integer resonances
- Cooling will probably not occur in these regions
- But Scynchrotron oscillations moves tracks about in mom, in and out of resonances
- transmission of Gaussian $\sigma_p/p=9\%$, $\epsilon=9$ mm, is 97 %
- Note: in cooling channel, coil currents should scale as mom rises in acceleration, and falls in absorber
- **CERN 88 MHz lattice looks GOOD to me**